PhytoKeys 257: 247–256 (2025)
DOI: 10.3897/phytokeys.257.152000

Research Article

Camellia yangii (Theaceae), a new species of tea plants (*Camellia* section *Thea*)

Dongwei Zhao[1]

1 *Department of Forestry, College of Forestry, Central South University of Forestry and Technology, 498 Shaoshan South Road, Changsha, Hunan 410004, China*
Corresponding author: Dongwei Zhao (zhaodw@csuft.edu.cn)

Abstract

Camellia sect. *Thea* contains plants of beverage sources with huge profits. Their natural germplasm resources have yet to be fully explored. Here, morphological, phenological and phylogenetic analyses were undertaken to reveal a new species of tea plants, *C. yangii* D.Wei Zhao. It is described with an illustration and photos of fresh characters provided. The new species is similar to *C. fangchengensis* and *C. ptilophylla* by the densely pubescent new branchlets, abaxial surface of leaves and pedicel, but differs from them in bearing a larger flower, fewer (3 vs. 5) but larger sepals, and the indumentum of the sepals. Molecular phylogenetic analysis using *RPB2* introns 11–15 and 23 and *waxy* suggests that it is a member of *C.* sect. *Thea* and its phylogenetically closely related species are *C. longissima* and *C. taliensis*. *Camellia yangii* has a later flowering phase compared with other taxa of *C.* sect. *Thea* that occurred or were planted nearby, so it cannot naturally hybridize with other tea plants. The new species bears a red or purplish red and densely pubescent terminal bud, which suggests it is a rare germplasm resource of tea plants. *Camellia yangii* is only known from a single extremely vulnerable population and strict conservation and asexual propagations are urgently needed to avoid extinction.

Key words: Beverage, diversity, genetic resources, Yunnan

OPEN ACCESS

Academic editor:
Wendy Achmmad Mustaqim
Received: 4 March 2025
Accepted: 22 May 2025
Published: 13 June 2025

Citation: Zhao D (2025) *Camellia yangii* (Theaceae), a new species of tea plants (*Camellia* section *Thea*). PhytoKeys 257: 247–256. https://doi.org/10.3897/phytokeys.257.152000

Introduction

Tea (*Camellia sinensis* [L.] Kuntze) is the most widely cultivated commercial crop of *Camellia* L. (Theaceae). Its leaf buds, leaves, and young branches are manufactured to yield several kinds of beverages, such as black, green, and oolong tea (Zhao 2022). Tea and its relatives, the tea plants (*C.* sect. *Thea* [L.] Griff.), all can be used as beverage sources and their natural populations are the vital germplasm resources of current cultivars of tea (Zhao 2024).

Griffith (1854) established *C.* sect. *Thea* (Zhao et al. 2017; Zhao 2022). The section was subsequently revised by different taxonomists mainly based on morphological and phytochemical investigations, such as Dyer (1874), Cohen-Stuart (1916), Sealy (1958), Chang (1981a, 1984, 1998), and Ming (1992, 1999, 2000). Molecular phylogenetic analyses using nuclear DNA regions supported the monophyly of *C.* sect. *Thea* (Xiao and Parks 2003; Vijayan et al. 2009; Zhao et al. 2023). By contrast, phylogenomic analyses based on the complete plastid genome did not suggest that the samples of *C.* sect. *Thea* formed a monophyletic

group (Yang et al. 2013; Yu et al. 2017; Yan et al. 2021). However, the monophyly of the section was generally supported in the phylogenomic investigations using data from transcriptomes of *Camellia* (Wu et al. 2022; Zan et al. 2023). Based on the phylogenetic analyses of biparentally inherited nuclear DNA rather than maternally inherited plastid DNA and morphological and phytochemical studies, Zhao (2024) revised *C.* sect. *Thea* comprised 11 natural species and seven infraspecific taxa, including a new member, *C. longissima* Hung T.Chang & S.Ye Liang. They all bear pedicellate flowers with 2–4 caducous bracteoles, persistent sepals, glabrous stamens, an apically 3–5-lobed style, and glabrous seeds. All these tea plants can be found in China. Three of them, including *C. sinensis* var. *assamica* (Royle ex Hook.) Steenis, *C. sinensis* var. *pubilimba* Hung T.Chang, and *C. taliensis* (W.W.Sm.) Melch. also occur in Indochina (Zhao 2024).

During several fieldworks in Yunnan, China in 2023, a special plant of *Camellia* was found in the forest of Malipo County. Subsequent morphological, phenological and phylogenetic analyses suggested that it was a distinct species of *C.* sect. *Thea*. The new tea plant is described below.

Materials and methods

Field investigations and sampling

Several fieldworks were undertaken to collect the specimens that bore flowers and/or fruits for the interested new species and other species of *Camellia* nearby. Photos of the habitat, habit, and fresh characters of the vegetative and propagative organs of the plants were taken. The flowering phases of different species were recorded. Clean and young leaves were collected and rapidly dried in silica gel, then stored at −30 °C for total DNA extraction. Voucher specimens were collected and deposited at the herbaria listed in Suppl. material 1. Samples were identified using a narrow circumscription based on Chang (1998) and the protologues.

Morphological and phylogenetic analyses

Morphological characters of the species were measured, described, and compared based on photos of living plants and specimens collected or examined at herbaria (acronyms following Thiers [2025], continuously updated) BM, CSFI, E, GXFI, GXMI, HITBC, IBK, IBSC, K, KUN, P, PE and SYS. Articles of publishing a new species in the Shenzhen Code (Turland et al. 2018) were complied with.

Total genomic DNA extraction and subsequent molecular phylogenetic analyses with three nuclear regions, including *RPB2* introns *11–15* and intron 23 and *waxy*, were elaborated in Zhao et al. (2023). The GenBank accession numbers of DNA regions sequenced in this study are listed in Suppl. material 1.

Results

The morphology of the new species, *C. yangii* D.Wei Zhao, matches the synapomorphies of species in *C.* sect. *Thea*, including bearing a pedicellate flower, two caducous bracteoles, persistent sepals, an apically 3-lobed style, and glabrous seeds (Zhao 2024). The new species is morphologically similar to

Table 1. Comparison of *Camellia yangii* and its similar species.

Character	*C. fangchengensis*	*C. longissima*	*C. ptilophylla*	*C. taliensis*	*C. yangii*
Indumentum of new branchlet	densely pubescent	glabrous	densely pubescent	glabrous	densely pubescent
Size of leaf blade	13–29 × 5.5–12.5 cm	7–20 × 3–9 cm	6.5–25 × 3–7.5 cm	7.5–15.5 × 3–6.5 cm	9–21 × 3.5–8.5 cm
Diameter of flower	2–3.5 cm	3–4.5 cm	2.5–3 cm	3–5 cm	4–5.5 cm
Length of pedicel	5–10 mm	17–40 mm	ca. 10 mm	8–15 mm	5–15 mm
Number of sepals	5	5	5	5	3
Size of sepals	2.5–3.5 × 4–5 mm	2.5–5 × 3–6 mm	3–7 × 3.5–7 mm	4–6.5 × 5.5–9 mm	8–9 × 10–13 mm
Indumentum of sepals	abaxially pubescent, adaxially glabrous	abaxially glabrous, adaxially sericeous	abaxially pubescent, adaxially glabrous	abaxially glabrous, adaxially sericeous	abaxially pubescent, adaxially sericeous
Indumentum of ovary	densely pubescent	glabrous	densely pubescent	pubescent	densely pubescent

C. fangchengensis S.Ye Liang & Y.C.Zhong and *C. ptilophylla* Hung T.Chang because of the indumenta of vegetative organs. The morphological differences between *C. yangii* and its similar species in *C.* sect. *Thea* are listed in Table 1. *Camellia yangii* is characterized by bearing three sepals in the flower (Figs 1, 2), whereas other taxa in *C.* sect. *Thea* have five sepals. The new species bears the largest sepals (8–9 × 10–13 mm) in *C.* sect. *Thea* (Figs 1, 2, Table 1; Zhao 2024).

The natural individuals of *C. yangii* in Malipo County that were found all bore flower buds on 21 November 2023 (*Yang S.X. et al. 7312–7315* at KUN, *Zhao D.W. et al. 536[1]–[5]* at CSFI), while other taxa of *C.* sect. *Thea* that occurred or were planted nearby were flowering or had immature fruits as shown in Table 2. *Camellia yangii* seems to be flowering about one month later than other tea plants (Table 2).

The DNA sequences of nuclear *RPB2* (introns 11–15 and 23) and *waxy* regions of nine samples, representing eight species in *C.* sect. *Thea*, were sequenced in this research (Fig. 3, Suppl. material 1). They and the DNA sequences of 45 samples reported in Zhao et al. (2023) were used to reconstruct a phylogenetic tree of *Camellia* shown in Fig. 3. All 18 samples of *C.* sect. *Thea* form a monophyletic group with strong support (Bayesian posterior probability [PP] = 1, Bootstrap [BS, %] = 99). Two samples of *C. yangii* form a strong supported clade (PP = 1, BS = 100) and are nested in the supported monophyletic group (PP = 1, BS = 95) with *C. longissima* and *C. taliensis*. It suggests that the new species, *C. yangii*, is a member of *C.* sect. *Thea* and its phylogenetically closely related species are *C. longissima* and *C. taliensis* (Fig. 3). Therefore, the latter two are listed in Table 1 to demonstrate the morphological differences between *C. yangii* and them.

Discussion

Many recognized species of *C.* sect. *Thea* were described in 1981 and 1984 by Hung T.Chang (Zhao 2024). Except for the basionym of the infraspecific taxa *C. tachangensis* F.C. Zhang var. *remotiserrata* (Hung T.Chang, H.S.Wang & P.S.Wang) T.L.Ming, *C. remotiserrata* Hung T.Chang, H.S.Wang & P.S.Wang that was published in 1990, *C. yangii* is the only new species of natural tea plants described after 40 years. The total number of taxa of *C.* sect. *Thea* in the world reaches 12 species and seven infraspecific taxa, and China harbors all of them.

As a supported member of *C.* sect. *Thea* (Fig. 3), *C. yangii* may be the hairiest species of tea plants. It is unique in *Camellia* by bearing three large

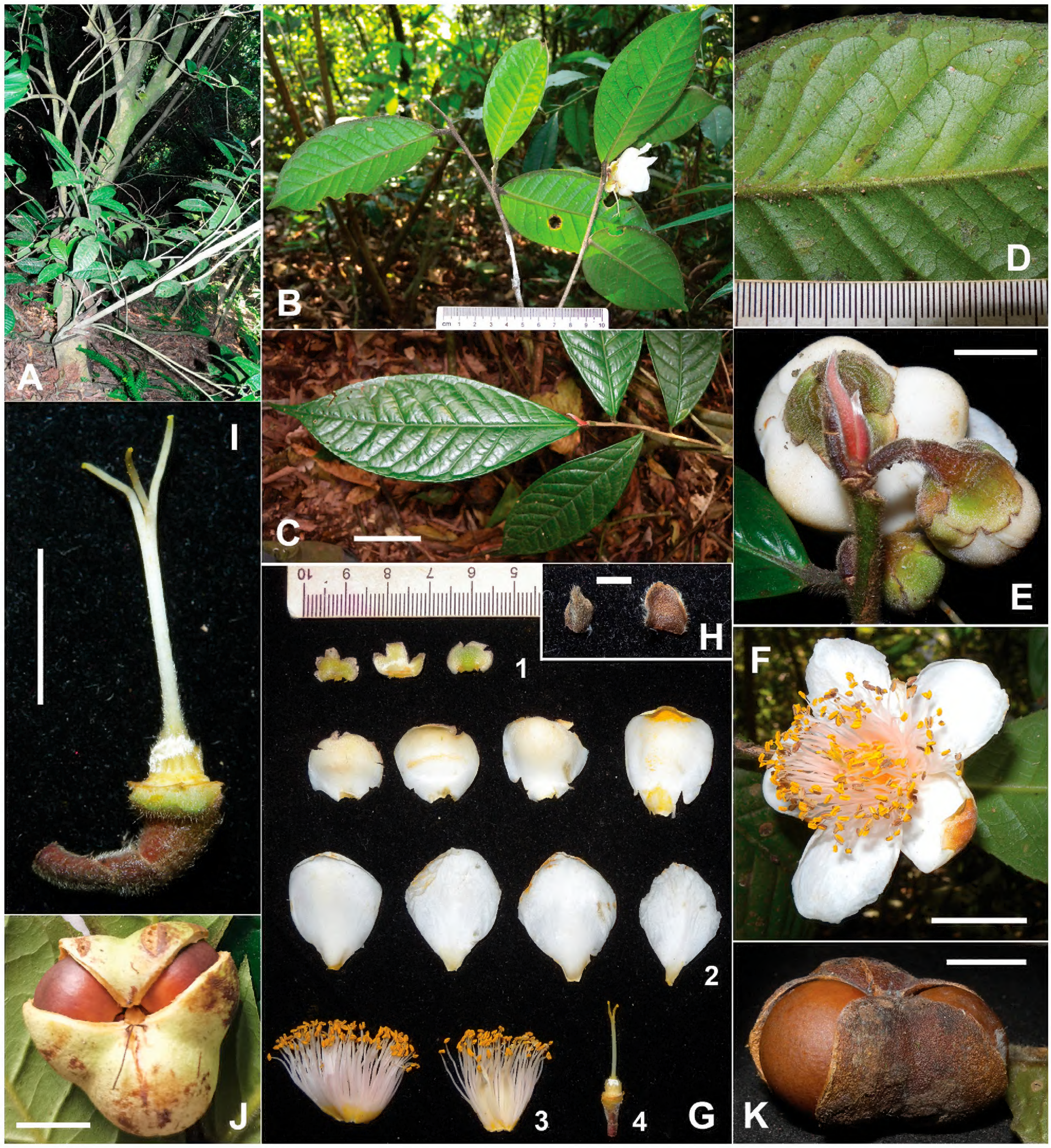

Figure 1. *Camellia yangii* D.Wei Zhao, sp. nov. **A.** Habit; **B, C.** Branchlets; **D.** Abaxial surface of leaf; **E.** Flower buds; **F.** Flower; **G.** A dissected flower without bracteoles, 1-sepals, 2-petals, 3-androecium, 4-pedicel, receptacle and gynoecium; **H.** Bracteoles; **I.** Pedicel, receptacle and gynoecium of a flower; **J, K.** Capsule. Scale bars: 5 cm (**C**); 1 cm (**E**, **I**, **J**, **K**); 2 cm (**F**); 2 mm (**H**). Photos: Zhao D.W. (**A**); Yang S.X. (**B–K**).

sepals in the flower, whereas other species of the genus generally bear five sepals (Table 1). *Camellia yangii* and its morphologically closely related species, *C. fangchengensis* and *C. ptilophylla*, are nested in the different supported clades within *C.* sect. *Thea* (Fig. 3). Meanwhile, the new species can be easily distinguished from its phylogenetically closely related plants, *C. longissima* and *C. taliensis*, by its hairy vegetative organs (vs. generally glabrous for the latter two) (Figs 1, 2, Table 1). It would be unreasonable to infer the phylogenetic

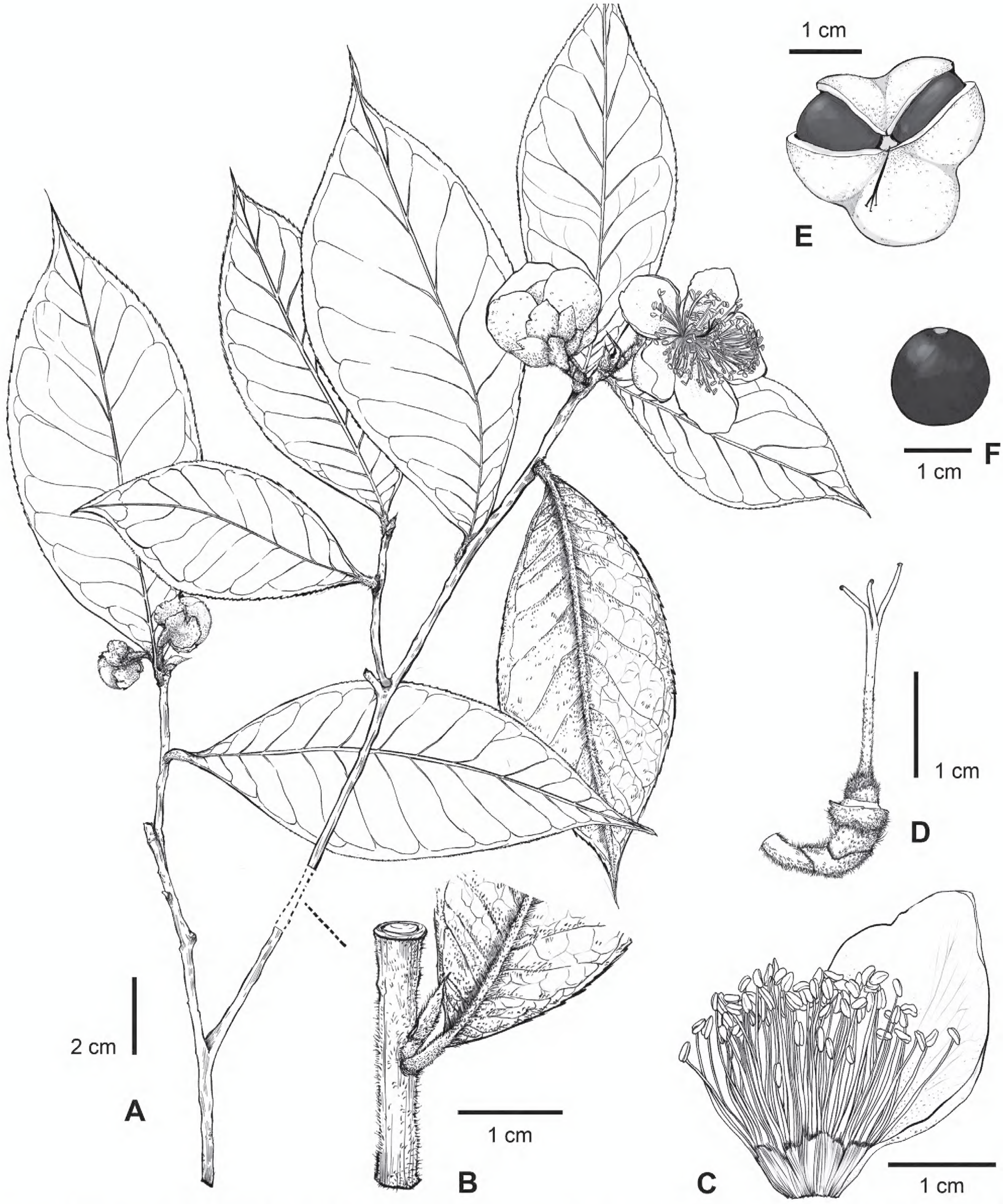

Figure 2. Illustration of *Camellia yangii*. **A.** Branchlet with flowers; **B.** A node of branchlet, showing the indumenta of the branchlet, leaf, and bud; **C.** A part of androecium and a petal; **D.** Pedicel, receptacle and gynoecium of a flower; **E.** Capsule; **F.** Seed. Drawn by Chen M.Q.

relationships among tea plants solely based on the variation of morphological characters as Chang (1981b) and Ming (2000) had done.

The flowering phase of *C. yangii* is later than those of other tea plants nearby (Table 2). The distinct flowering periods may not suggest that the new species

Table 2. Observed flowering and fruiting phases of *Camellia yangii* and other taxa of *C.* sect. *Thea* occurred or were planted nearby in Yunnan, China in 2023.

Taxon	Locality	Status	Phenology	Vouchers
C. crispula	Qiubei	Wild	14 November: flowering	*Zhao et al. 516* (CSFI)
C. crispula var. *multiplex*	Wenshan	Wild	22 November: fruiting	*Zhao et al. 539–542* (CSFI)
C. gymnogyna	Pingbian	Wild	24 November: fruiting	*Zhao et al. 550* (CSFI)
C. kwangsiensis	Guangnan	Wild	7 November: flowering	*Zhao et al. 492(3), (4), (9), (10)* (CSFI)
C. kwangsiensis var. *kwangnanica*	Guangnan	Wild	7 November: flowering	*Zhao et al. 492(1), (5), (6), (7), (8)* (CSFI)
C. sinensis var. *assamica*	Malipo	Planted	21 November: flowering	*Zhao et al. 534* (CSFI)
C. sinensis var. *pubilimba*	Guangnan	Planted	7 November: flowering	*Zhao et al. 491* (CSFI)
C. tachangensis	Shizong	Wild	12 November: flowering	*Zhao et al. 508, 509* (CSFI)
C. yangii	Malipo	Wild	25 December: flowering	*Yang S.X. & Yin L. 7357–7359* (KUN)

can naturally hybridize with other taxa of *C.* sect. *Thea*, which will support its novelty based on the biological species concept (Butlin and Stankowski 2020). Together with the morphological (Table 1) and phylogenetic (Fig. 3) analyses presented above based on the phenetic species concept (Sokal and Crovello 1970) and phylogenetic species concept (Mishler and Brandon 1987), respectively, it is reasonable to conclude that *C. yangii* is a new species of *C.* sect. *Thea*.

Camellia yangii has a red or purplish red and densely pubescent terminal bud (Fig. 1C, E), which can be suggested as a rare germplasm resource of tea plants based on the Chinese Agricultural Standard (NY/T 2031-2011). However, the top priority for the new species should be conservation. *Camellia yangii* is only known from a single population with fewer than 10 individuals in the tropical montane forest. It is extremely vulnerable to overexploitation or deforestation. Therefore, its detailed locality is absent here for conservation reasons. Further field surveys and ex-situ asexual propagations are urgently needed for *C. yangii* to avoid extinction.

Taxonomic treatment

Camellia yangii **D.Wei Zhao, sp. nov.**
urn:lsid:ipni.org:names:77363261-1

Type material. ***Holotype*****:** China • Yunnan: Malipo, in evergreen montane forest, 858 m, 25 December 2023, *Yang S.X. & Yin L. 7357* (holotype: KUN 1628256!; isotypes: CSFI!, KUN 1628257!, KUN 1628258!)

Diagnosis. Similar to *C. fangchengensis* and *C. ptilophylla* by the densely pubescent new branchlets, abaxial surface of leaves and pedicel, but differs from them in bearing a larger flower (4–5.5 cm in diam. vs. 2–3.5 cm in diam.), less (3 vs. 5) but larger (8–9 × 10–13 mm vs. 2.5–7 × 3.5–7 mm) sepals, and sericeous (vs. glabrous) adaxial surface of the sepals (Table 1).

Description. Evergreen shrubs or trees, 5–8 m tall. ***Bark*** grayish yellow. ***New branchlets*** densely pubescent, ***terminal buds*** red or purplish red, densely pubescent. ***Petioles*** 3–5 mm long, densely pubescent; ***leaf blades*** elliptic, oblong, or obovate, 9–21 × 3.5–8.5 cm, coriaceous, abaxially yellowish green, densely pubescent, adaxially dark green, glabrous or puberulous along midrib at base, midrib and secondary veins abaxially elevated and adaxially impressed, secondary veins 10–13 pairs, base cuneate, margin serrulate, apex acuminate.

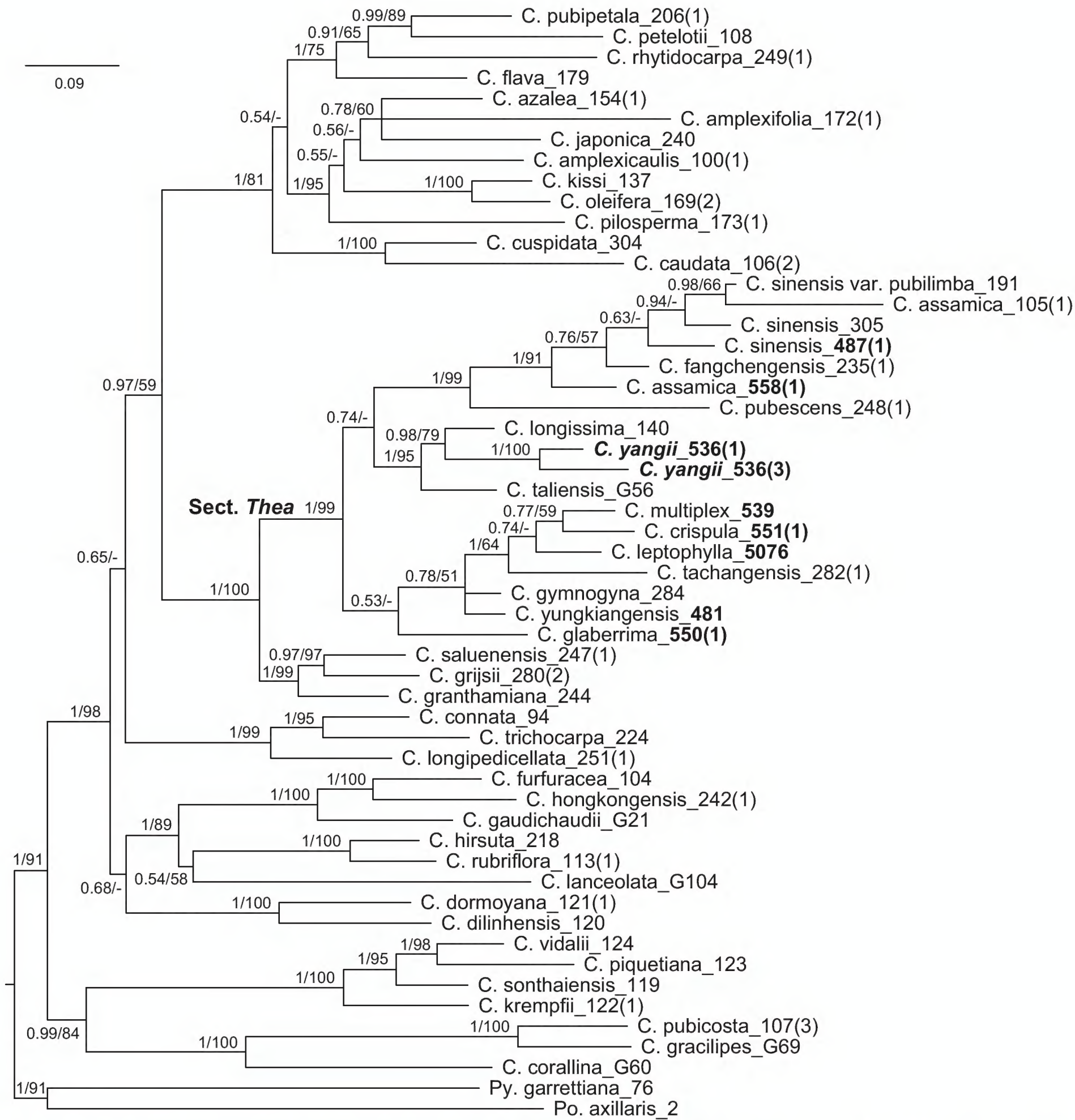

Figure 3. The Bayesian consensus tree reconstructed by the concatenated *RPB2* (introns 11–15 and 23) and *waxy* data for *Camellia* sect. *Thea* and related species. Bayesian posterior probabilities (PP) ≥ 0.5 and Bootstrap values (BS; %) ≥ 50 are presented above or below branches as PP/BS. Branch lengths are proportional to the expected nucleotide substitutions per site. Numbers in bold indicate the samples were sequenced in this research.

Flowers axillary, solitary or paired, 4–5.5 cm in diam. ***Pedicel*** 5–15 mm long, densely pubescent. ***Bracteoles*** 2, caducous, ovate, 2–3 × 2–2.5 mm, abaxially pubescent, adaxially glabrous. ***Sepals*** 3, persistent, suborbicular, 8–9 × 10–13 mm, abaxially pubescent, adaxially sericeous, margin ciliolate. ***Petals*** 7–8 in 1–2 whorls, white, or the outmost petal green at apex, elliptic to obovate, 15–35 × 15–25 mm, outer petals pubescent or puberulous on both surfaces, inner petals puberulous at base or glabrous on both surfaces, apex obtuse to rounded, inner 4–5 petals basally adnate to filament whorl for 2–4 mm. ***Stamens*** numerous, 20–25 mm long; ***filaments*** white or slightly pink, glabrous,

outer filaments basally connate for 3–5 mm. ***Ovary*** globose to ovoid, densely pubescent. ***Styles*** 1, 18–22 mm long, gradually becoming glabrous upwards, apically 3-lobed for 5–8 mm. ***Capsule*** tri-coccal, ca. 3.5 cm in diam., ca. 2 cm in height, 3-loculed with 1 seed per locule; pericarp 1–2 mm thick. ***Seeds*** fuscous, globose, ca. 1.5 cm in diam., glabrous, Figs 1, 2.

Phenology. Flowering December, fruiting August–September (Table 2).

Paratypes. CHINA. • Yunnan: Malipo County, in evergreen montane forest, 858 m, August 2023, *Yang S.X. & Xiao B. 7122* (KUN); same place, 21 November 2023, *Yang S.X. et al. 7312–7315* (KUN, equal to *Zhao D.W. et al. 536[1]–[4]* at CSFI, respectively), *Zhao D.W. et al. 536(5)* (CSFI); same place, 25 December 2023, *Yang S.X. & Yin L. 7358* (KUN), *7359* (KUN).

Distribution and habitat. *Camellia yangii* is endemic to the tropical evergreen montane forest in Malipo County.

Etymology. *Camellia yangii* is named after the leading collector of its type, Dr. Shixiong Yang, an expert of the family Theaceae at Kunming Institute of Botany, Chinese Academy of Sciences. The Chinese name of *C. yangii* is proposed as "三萼茶" because it bears three sepals in the flower.

Acknowledgments

I thank the staff of herbaria listed in the materials and methods above for making the specimens available, Dr. Shixiong Yang of Kunming Institute of Botany, Chinese Academy of Sciences, Mr. Bo Xiao of Malipo, Daweishan National Nature Reserve (Hekou and Pingbian, Yunnan), and Mr. Lu Yin of Agriculture and Rural Affairs and Science and Technology Bureau of Guangnan, Yunnan for their help during sample collection, and Miss Meiqian Chen of Central South University of Forestry and Technology for the illustration.

Additional information

Conflict of interest

The author has declared that no competing interests exist.

Ethical statement

No ethical statement was reported.

Funding

This work is funded by the Scientific Research Foundation of the Central South University of Forestry and Technology (2019YJ023).

Author contributions

Conceptualization: DWZ. Writing – original draft: DWZ.

Author ORCIDs

Dongwei Zhao https://orcid.org/0000-0002-7761-7127

Data availability

All of the data that support the findings of this study are available in the main text and GenBank as shown in Suppl. material 1.

References

Butlin RK, Stankowski S (2020) Is it time to abandon the biological species concept? No. National Science Review 7: 1400–1401. https://doi.org/10.1093/nsr/nwaa109

Chang HT (1981a) *Thea*—A section of beveragial tea-trees of the genus *Camellia*. Acta Scientiarum Naturalium Universitatis Sunyatseni 20(1): 87–99.

Chang HT (1981b) A taxonomy of the genus *Camellia*. The Editorial Staff of the Journal of Sun Yatsen University, Guangzhou, 180 pp.

Chang HT (1984) A revision on the tea resource plants. Acta Scientiarum Naturalium Universitatis Sunyatseni 23(1): 1–12.

Chang HT (1998) Theaceae (1) Theoideae 1. *Camellia*. In: Delectis Florae Reipublicae Popularis Sinicae Agendae Academiae Sinicae Edita (Eds) Flora Reipublicae Popularis Sinicae (Vol. 49[3]). Science Press, Beijing, 3–195.

Cohen-Stuart CP (1916) Voorbereidende onderzoekingen ten dienste van de selektie der theeplant. Mededeelingen van het Proefstation voor Thee 40: 1–328.

Dyer WTT (1874) Ternstroemiaceae. In: Hooker JD (Ed.) The Flora of British India (Vol. 1). L. Reeve & Co., London, 279–294.

Griffith W (1854) Notulae ad plantas Asiaticas, part 4. Printed by Charles A. Serrao, Calcutta.

Ming TL (1992) A revision of *Camellia* sect. *Thea*. Acta Botanica Yunnanica 14(2): 115–132.

Ming TL (1999) A systematic synopsis of the genus *Camellia*. Acta Botanica Yunnanica 21(2): 149–159.

Ming TL (2000) Monograph of the genus *Camellia*. Yunnan Science and Technology Press, Kunming, 352 pp.

Mishler BD, Brandon RN (1987) Individuality, pluralism, and the phylogenetic species concept. Biology & Philosophy 2: 397–414. https://doi.org/10.1007/BF00127698

Sealy JR (1958) A revision of the genus *Camellia*. The Royal Horticultural Society, London, 239 pp.

Sokal RR, Crovello TJ (1970) The biological species concept: A critical evaluation. American Naturalist 104: 127–153. https://doi.org/10.1086/282646

Thiers BM (2025) Index Herbariorum. http://sweetgum.nybg.org/science/ih/ [Accessed 4 March 2025]

Turland NJ, Wiersema JH, Barrie FR, Greuter W, Hawksworth DL, Herendeen PS, Knapp S, Kusber WH, Li DZ, Marhold K, May TW, McNeill J, Monro AM, Prado J, Price MJ, Smith GF (2018) International Code of Nomenclature for algae, fungi, and plants (Shenzhen Code) adopted by the Nineteenth International Botanical Congress Shenzhen, China, July 2017. Regnum Vegetabile 159. Koeltz Botanical Books, Glashütten, 254 pp. https://doi.org/10.12705/Code.2018

Vijayan K, Zhang WJ, Tsou CH (2009) Molecular taxonomy of *Camellia* (Theaceae) inferred from nrITS sequences. American Journal of Botany 96: 1348–1360.

Wu Q, Tong W, Zhao HJ, Ge RH, Li RP, Huang J, Li FD, Wang YL, Mallano AI, Deng WW, Wang WJ, Wan XC, Zhang ZZ, Xia EH (2022) Comparative transcriptomic analysis unveils the deep phylogeny and secondary metabolite evolution of 116 *Camellia* plants. The Plant Journal 111: 406–421. https://doi.org/10.1111/tpj.15799

Xiao TJ, Parks CR (2003) Molecular analysis of the genus *Camellia*. International Camellia Journal 35: 57–65.

Yan YJ, Davis CC, Dimitrov D, Wang ZH, Rahbek C, Borregaard MK (2021) Phytogeographic history of the tea family inferred through high-resolution phylogeny and fossils. Systematic Biology 70: 1256–1271. https://doi.org/10.1093/sysbio/syab042

Yang JB, Yang SX, Li HT, Yang J, Li DZ (2013) Comparative chloroplast genomes of *Camellia* species. PLoS ONE 8: e73053. https://doi.org/10.1371/journal.pone.0073053

Yu XQ, Gao LM, Soltis DE, Soltis PS, Yang JB, Fang L, Yang SX, Li DZ (2017) Insights into the historical assembly of East Asian subtropical evergreen broadleaved forests revealed by the temporal history of the tea family. The New Phytologist 215: 1235–1248. https://doi.org/10.1111/nph.14683

Zan T, He YT, Zhang M, Yonezawa T, Ma H, Zhao QM, Kuo WY, Zhang WJ, Huang CH (2023) Phylogenomic analyses of *Camellia* support reticulate evolution among major clades. Molecular Phylogenetics and Evolution 182: 107744. https://doi.org/10.1016/j.ympev.2023.107744

Zhao DW (2022) Nomenclature, typification, and natural distribution of *Camellia sinensis* var. *assamica* (Theaceae). Journal of Tea Science 42(4): 491–499.

Zhao DW (2024) Botany and taxonomy of tea (*Camellia sinensis*, Theaceae) and its relatives. In: Chen L, Chen JD (Eds) The Tea Plant Genome. Concepts and Strategies in Plant Sciences. Springer, Singapore, 13–37. https://doi.org/10.1007/978-981-97-0680-8_2

Zhao DW, Parnell JAN, Hodkinson TR (2017) Names of Assam tea: Their priority, typification and nomenclatural notes. Taxon 66: 1447–1455. https://doi.org/10.12705/666.11

Zhao DW, Hodkinson TR, Parnell JAN (2023) Phylogenetics of global *Camellia* (Theaceae) based on three nuclear regions and its implications for systematics and evolutionary history. Journal of Systematics and Evolution 61: 356–368. https://doi.org/10.1111/jse.12837

Supplementary material 1

Samples used in the research

Author: Dongwei Zhao

Data type: xlsx

Link: https://doi.org/10.3897/phytokeys.257.152000.suppl1